

REMARKS/ARGUMENTS

Claims 14, 21, 25 and 29 have been amended. Claims 14 and 17 to 29 remain in the application, of which claims 14, 21, 25 and 29 are the independent claims. Reconsideration and further examination are respectfully requested.

Initially, Applicants thank the Examiner for the courtesies extended to Applicants' representatives in the telephonic interview conducted on March 1, 2010, in which the § 103 rejection of claim 14 was discussed. During the interview, the claim feature of receiving, from a single remote station, a reverse link channel comprising a plurality of subchannels was discussed in light of Walton, and in particular col. 3, ll. 27-47 of Walton. Applicants' representatives argued that Walton does not disclose a mobile station sending data on a reverse link channel comprising multiple subchannels, but rather a mobile station sending data on a selected one of 8 channels based on a determined data rate. The Examiner maintained that Walton discloses the above feature. As understood by Applicants, the Examiner's position is that one of ordinary skill in the art would have understood that different groups of the 8 channels disclosed in Walton can be put together to achieve different data rates. Applicants respectfully disagree for reasons discussed below. During the interview, Applicants' representatives also argued that the Examiner has not sufficiently articulated a motivation to combine Bae and Walton. No agreement was reached.

Claim Rejections – 35 USC § 103

Claims 14 and 17-29 were rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,621,723 ("Walton") further in view of U.S. Patent No. 5,832,387 ("Bae") further in view of U.S. Patent No. 5,930,706 ("Raith"). Reconsideration and withdrawal of these rejections are respectfully requested.

Independent claim 14 is directed to a method in an apparatus. The method comprises receiving, by the apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals, comparing a frame error rate of each of the subchannel signals with a frame error rate threshold, and generating power control messages, based on the comparison, to be used to independently adjust transmit powers of more than one of the plurality of subchannel signals to different levels.

Applicants submit that Walton does not disclose or suggest receiving from a single remote station a reverse link signal that comprises a plurality of subchannels.

Walton is generally directed to power control on the reverse link of a CDMA system. Walton discloses eight reverse packet data channels associated with different data rates that are supported in a packet data network. Walton, col. 3, ll. 31-40. Walton also discloses that a mobile unit determines a reverse link data rate based on its power class and estimated power margin, and selects the reverse packet data channel corresponding to the maximum data rate which the link can support. Walton, col. 3, ll. 22-30.

Walton does not disclose or suggest receiving from a single mobile unit a reverse link signal that comprises a plurality of subchannels. As discussed above, the mobile unit of Walton determines a data rate, selects one of the reverse link data channels based on the determined data rate determination, and transmits on the selected one of the reverse link data channels. This is clear from col. 3, ll. 27-31 of Walton which indicates that “the mobile may select the reverse packet data channel corresponding to the maximum data rate which the link can support.” (emphasis added). Walton does not disclose or suggest the reverse link signal from a single mobile unit comprising more than the selected one of the reverse packet data channels. Thus, Walton does not teach or suggest the feature of receiving from a single remote station a reverse link signal that comprises a plurality of subchannel signals as recited in claim 14.

Walton also discloses that the reverse packet data channels are delineated by assigning a given code or set of codes to correspond to a fixed data rate. Walton, col. 3, ll. 31-33. “Mobiles that select a specific data rate are required to use a code from the set which is assigned to that channel.” Walton, col. 3, ll. 33-37. Walton also discloses that, for an example of 8 different data rates supported in data packet network, a packet data channel code set is assigned to each of the corresponding 8 channels. Walton, col. 3, ll. 35-40. Walton also discloses that “[w]hen only one code is assigned to support a given data rate channel, the possibility of two or more users attempting to simultaneously use the reverse packet data channel exists. When multiple codes are assigned, this likelihood is reduced at the expense of increased processing requirements.” Walton, col. 3, ll. 40-45. Walton also teaches that “[b]y using the dedicated channel codes assigned to specific data rates, the reverse packet data channel receivers [of a base station] do not have to estimate the channel data rate,” which greatly simplifies the processing requirements at the receivers. Walton, col. 4, ll. 27-35.

The Office Action contends that Walton discloses receiving from a single remote station a reverse link signal that comprises a plurality of subchannels. In support of its contention, the Office Action states that “[t]he base station [of Walton] receives a reverse link signal which comprises one of 8 channels or a channel set which is associated with a data rate or subchannels from a single mobile or single remote station per col. 3 line 15 to col. 4 line 45 and per col. 6, line 46 to col. 7 line 20.” See page 2 of the Office Action dated January 13, 2010. Applicants respectfully disagree. The Office Action appears to be referring to the “channel set” mentioned in col. 3., ll. 36-40 of Walton. This passage of Walton discloses that a receiving element of the base station, which is shared by multiple mobiles in the network, serves a “specific channel or channel set.” Walton, col. 3, ll. 18-20 and ll. 36-40. One skilled in the art would have understood the “channel set” in col. 3, l. 40 of Walton to refer back to the “packet data channel code set” assigned to a channel discussed earlier in the same sentence, and not to refer to multiple channels. Walton, col. 3, ll. 36-40. This passage of Walton does not disclose or suggest that the receiving element of the base station receives from a single mobile a reverse link signal comprising multiple channels.

In support of its contention, the Office Action also states “[t]he eight subchannels or channel set can be assigned to a single code; thus, are interpreted as a plurality of combined subchannels signals per col. 3, lines 31 to 46.” See page 2 of the Office Action. Applicants submit that this statement runs contrary to the explicit disclosure of Walton that the channels are delineated by codes. Walton, col. 3, ll. 31-33. Because the channels are delineated by different codes, the channels cannot be assigned to the same code.

Further, as understood by Applicants from the interview with the Examiner, the Examiner contends that one skilled in the art would have understood that different groups of the 8 channels disclosed in Walton can be put together to achieve different data rates. Applicants respectfully disagree. From col. 3., ll. 35-40 of Walton, it is clear that each of the 8 channels corresponds to one of the 8 data rates supported in the network. Thus, one skilled in the art would have understood that each of the 8 data rates corresponds to one of the 8 channels and is not obtained by grouping together multiple ones of the 8 channels. Further, one skilled in the art would have understood that a mobile unit wishing to transmit at one of the 8 data rates supported in the network would transmit on the corresponding one of the 8 channels and not a group of multiple ones of the 8 channels.

For at least the reasons given above, Applicants submit that Walton does not disclose or suggest receiving from a single remote station a reverse link signal that comprises a plurality of subchannels.

Because Walton fails to teach or suggest receiving a reverse link signal from a single remote station that comprises a plurality of subchannel signals, Walton necessarily fails to teach or suggest generating control messages to be used to independently adjust transmit powers of more than one of the plurality of subchannels signals of the reverse link signal to different levels.

Neither Bae nor Raith are seen to remedy the foregoing deficiencies of Walton for at least the reason set forth below.

Bae is directed to a power allocation apparatus for a multicarrier transmission system, in which data is transmitted on a transmission channel comprising subchannels having different frequency bands. Bae, col. 1, ll. 7-11, and col. 4, ll. 57-61. The multicarrier transmission system of Bae is used to transmit data for multiple subscribers over a wired line, for example, a copper wired line in an asymmetric digital subscriber line (ADSL) system. Bae, col. 2, ll. 19-39. Bae is not directed to a CDMA system, in which a base station receives a reverse link signal from a remote station.

The purpose of the power allocation apparatus of Bae is to allocate power to the different subchannels in a manner that compensates for efficiency losses of the multicarrier transmission system caused by frequency selective interference. Bae, col. 7, ll. 4-13 and col. 7, l. 66 to col. 8, l. 4 and Fig. 9. Because the subchannels have different frequency bands, the frequency selective interference impacts the signal-to-noise ratios (SNRs) of the subchannels differently. Bae, Fig. 10B and col. 7, ll. 20-24. The power allocation apparatus of Bae compensates the multi-carrier transmission system for frequency selective interference by initially assigning power to subchannels of different frequency bands in proportion to calculated SNRs for the subchannels (Fig. 10B), limiting the power for subchannels within frequency band f_1 to power limit P_1 (Fig. 11A), reassigning remaining power to the other subchannels (Fig. 11B), and limiting the power for subchannels within frequency band f_2 to power limit P_2 (Fig. 11C). Bae, Figs. 10B-11C and col. 7, ll. 30-56. The power limits are dependant on the frequency bands of the subchannels.

Bae does not teach or suggest a base station receiving from a single remote station a reverse link signal comprising a plurality of subchannel signals, and therefore fails to cure the same deficiencies of Walton. By contrast, Bae discloses a multicarrier transmission system that

transmits different frequency-band subchannels for multiple subscribers over a wired line. Bae, col. 2, ll. 19-39.

Further, Applicants submit that, contrary to the Office Action, it would not have been obvious to incorporate the concept of independently adjusting more than one subchannel of Bae into the system of Walton for improved performance. See page 2 of the Office Action. As discussed above, Bae teaches that independently adjusting the power of subchannels improves performance by compensating for frequency selective fading of multicarrier transmissions. Since the CDMA system of Walton does not use multicarrier transmissions, and therefore does not suffer from the frequency selective fading of multicarrier transmissions, one skilled in the art would have no reason to expect that incorporating the concept of adjusting more than one subchannel of Bae into the CDMA system of Walton would lead to improved performance of the CDMA system of Walton.

In response to similar arguments made by Applicants in the previous response, the Examiner states that “[s]olving the problem of fading associated with a multicarrier system is not the motivation that the examiner used to combine” Walton and Bae. See page 10 of the Office Action. Applicants submit that the Examiner’s motivation of improved performance by combining Bae and Walton is conclusory and does not articulate a rationale for why one skilled in the art would have expected that incorporating the concept of adjusting more than one subchannel of Bae into the CDMA system of Walton would lead to improved performance. The Supreme Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 412, 82 USPQ2d at 1396.

Raith, which was cited by the Office Action for its alleged disclosure of the power control message being based on a frame error rate, fails to remedy the above deficiencies of Walton and Bae.

For at least the reasons above, Applicants believe that claim 14 is allowable over the applied references and respectfully request that the rejection of claim 14 be withdrawn.

Independent claims 21, 25 and 29 includes features similar to those of claim 14, and are believed to also be allowable over the applied references for at least the reasons given for claim 14.

The other claims currently under consideration in the application are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claims is deemed to define an addition aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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